

*Ambel Whisenand*



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

May 1, 2012



Mr. Joseph Haake  
Environmental Scientist  
The Boeing Company  
P.O. Box 516 MC S1112491  
St. Louis, MO 63166-0516

RCRA



RE: Interim Measures Work Plan Sub-Areas 2B and 6B, The Boeing Company, Tract I  
Hazelwood, Missouri  
EPA ID# MOD000818963

Dear Mr. Haake:

The Missouri Department of Natural Resources (Department), in coordination with the U.S. Environmental Protection Agency (EPA) Region 7, hereby approves The Boeing Company's Revised Interim Measures Work Plan Sub-Areas 2B and 6B, dated March 12, 2012. Boeing submitted the document as required by Corrective Action Condition VI.C.2. of Boeing's Missouri Hazardous Waste Management Facility Part I Permit, dated March 5, 1997. The purpose of the document is to propose in-situ chemical oxidation as an interim measure to reduce the mass of chlorinated solvents in two source areas (sub-area 2B and sub-area 6b). The Work Plan proposes injecting sodium permanganate into the subsurface using direct-push borings in both sub-areas. We are approving the Interim Stabilization Measures Work Plan with the following conditions:

1. Boeing must notify Christine Kump-Mitchell, P.E., of my staff 15 calendar days before starting fieldwork related to the Interim Measures Work Plan.
2. Boeing must submit the material safety data sheet for the injected material and adjustments to the volume of oxidant to be injected once an implementation contractor is selected.

Boeing is responsible for completing the approved work and submitting the Interim Measures Report within the timeframes specified in the approved Interim Measures Work Plan. Please

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submit three copies of the Interim Measures Report to the Department and two copies to the EPA. Boeing must submit a written extension request and justification for the request to the Department if Boeing anticipates not meeting the schedule.

If you have questions regarding this letter, please contact Christine Kump-Mitchell, P.E., of my staff at the Missouri Department of Natural Resources, 7545 South Lindbergh, Suite 210, St. Louis, MO 63125-4839, (314) 416-2464 or 1-800-361-4827, or by e-mail at christine.kump@dnr.mo.gov. Thank you.

Sincerely,

HAZARDOUS WASTE PROGRAM



Richard A. Nussbaum, P.E., R.G.  
Chief, Permits Section

RAN:ckm

Enclosure

c: Ms. Joletta Golik, Environmental Manager, Lambert-St. Louis International Airport  
Atul M. Salhotra, Ph.D., Vice President, RAM Group, Incorporated  
Ms. Amber Whisnant, Project Manager, U.S. EPA Region 7 ✓  
St. Louis Regional Office, Missouri Department of Natural Resources

## UIC Checklist

In an effort to comply with the terms of the memorandum between the Hazardous Waste Program (HWP) and the Water Protection Program (WPP) dated September 30, 2004, this checklist has been developed. With my signature at the end of this checklist, I (the site project manager or reviewer) have reviewed the remedial action workplan (and other information submitted for approval of injection activity). A check mark and date beside the required information element indicates satisfactory submittal of that element.

<u>Submitted?</u>	<u>Date</u>	<u>Element</u>
<u>yes</u>	<u>3/12/12</u>	Facility and Owner Information for site
<u>yes</u>	<u>3/12/12</u>	Brief Description of purpose of injection
<u>yes</u>	<u>3/12/12</u>	List of contaminants, highest levels above standards and estimated mass.
<u>yes</u>	<u>3/12/12</u>	Soil type(s)
<u>yes</u>	<u>3/12/12</u>	Depth and volume of soil contamination
<u>yes</u>	<u>3/12/12</u>	Cross section of site that includes depth to bedrock, depth to water bearing zone(s), depth of injection, area of soil and groundwater contamination, utilities, septic tanks system, etc.
<u>yes</u>	<u>3/12/12</u>	Map of site with all pertinent features
<u>yes</u>	<u>3/12/12</u>	Geological features present in 1/4 mile radius of site
<u>yes</u>	<u>3/12/12</u>	Schematic of injection wells
<u>yes</u>	<u>3/12/12</u>	MSDS for injected material and literature research if biological agents are introduced. Are these biological organisms already present in soil and at what concentrations?
<u>yes</u>	<u>3/12/12</u>	How many pounds of the chemical will be injected?
<u>yes</u>	<u>3/12/12</u>	If injected into an aquifer, explain how the injected chemicals will be withdrawn or reduced to pre-injection levels? The following information should be collected for each hydraulically distinct zone into which injection is to occur both prior to and following injection: BOD, COD, TOC, Ammonia as N, groundwater flow velocity, directions, gradients, temperature and pH.
<u>yes</u>	<u>3/12/12</u>	A listing of other wells at the site, including active domestic, commercial and industrial use wells; abandoned water wells; aquifer recharge wells; aquifer remediation wells; automobile service station disposal wells, ground source heatpump wells; improved sinkholes; industrial drainage wells; mine backfill wells; and others not specifically listed.
<u>NA</u>	<u>3/12/12</u>	If injection wells are to be cased, a permit or other approval may be required from DGLS.
<u>NA</u>	<u>3/12/12</u>	If the process results in a surface discharge, then a separate Missouri State Operating Permit for such discharge may be required from the Water Pollution Program.
<u>yes</u>	<u>3/12/12</u>	Timetable for injection and a description of the monitoring program to assess the efficacy of the injection. A list of wells to be sampled and sampling methods to be used to analyze soil and groundwater samples to demonstrate the effectiveness of treatment.
<u>yes</u>	<u>3/12/12</u>	Contingency plan for further investigation, remediation and/or analysis of different remedial alternatives if levels do not reach cleanup levels in the time frame predicted. Implementation of the contingency should include further meetings/discussions with the department.
<u>yes</u>	<u>3/12/12</u>	A geologist or professional engineer registered in Missouri should seal any documents proposing subsurface injection of materials for remediation purposes and/or evaluation of the efficacy of such remediation.

Project Manager or Reviewer

Date

Site Name

[Signature] 3/28/12  
The Doring Company

Will submit  
 MSDS on  
 contractor is  
 affected.